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SMU earthquake, drilling findings are years off



/SMU

Seismology equipment has been deployed by SMU scientists around Azle.

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Scientists at SMU studying the earthquakes around Azle warned Friday that it would be years before they were able to determine a possible link to nearby natural gas drilling.

Heather DeShon, the geophysics professor leading the team, said seismographs deployed around the epicenter of the activity would remain in place for 6 to 12 months. Peer-reviewed analysis could take years more.

“It is important we do not rush to conclusions,” she said at a news conference Friday. “I understand people want results quickly. But we have to sit and wait a little while.”

The study aims to determine whether injection wells used by the natural gas drilling industry to pump vast volumes of wastewater underground caused the earthquakes. Seismic activity in other states has been linked by scientists to injection wells.

There are three injection wells within a 6-mile radius of the center of the seismic activity, DeShon said. But whether any of those wells cross the underground faults that drive seismic activity is unknown.

Brian Stump, a seismologist at SMU, said scientists long ago established an older and historically inactive fault line running close to Azle and Mineral Wells. But the exact path of the fault is unknown, and scientists are curious about whether other smaller faults might be present.

“These aren’t active faults like on a plate boundary,” Stump said. “But these faults do have stress on them.”

The research is funded by SMU using equipment on loan from the U.S. Geological Survey and a consortium of U.S. universities. A spokeswoman for the university said the study would receive no funding from the oil and gas industry.

Since Nov. 5, the U.S. Geological Survey has recorded more than 30 earthquakes around Azle, a small farming town outside Fort Worth. The largest was 3.7 on the Richter scale, relatively small by geological standards. But it was enough to raise concern in a region unaccustomed to earthquakes.

The quick rush of seismic activity recalled a series of mysterious earthquakes around Cleburne and Dallas/Fort Worth International Airport between 2008 and 2011. Scientists from SMU and the

University of Texas investigated and speculated that while there was a “relationship” to nearby injection wells, there was not enough evidence to prove the correlation definitively.

In 2009, Chesapeake Energy, the Oklahoma City-based driller, agreed to shut down two injection wells close to the seismic activity while disputing any connection.

Stump said Friday the earlier study did not have the volume of equipment now being employed around Azle, which includes seven seismographs and five smaller sensors.

The earthquakes around Azle, so close to a major metropolitan area, have attracted considerable attention from scientists and regulators alike.

Scientists have long understood that injecting wastewater at high pressure underground can put stress on faults and trigger earthquakes. But much is not understood. And with recent bouts of seismic activity in oil and gas fields in Oklahoma and Arkansas, efforts to learn more are intensifying.

The Texas Railroad Commission continues to talk with scientists at UT to also study the Azle earthquakes. And the agency is in the process of hiring a full-time seismologist.

At SMU, researchers are in negotiations with oil and gas companies that drill in the Barnett Shale to obtain what information they have on the underlying geology.

Eventually they hope to cross-reference the seismic data against injection well activity in the area. So far they have relied on public data from the Texas Railroad Commission but are seeking more detailed data on the injection wells, DeShon said.

“The D-FW area cannot assume we’re not going to feel earthquakes any longer,” she said.

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